First Nine Weeks					Second Nine Weeks				
Number of weeks	Unit		Topics		Number of weeks	Unit		Topics	
3	1.1	The Language of Physics	1	Measurements in Experiments (Scientific Notation, Significant Digits, Dimensional Analysis, Precision vs. Accuracy)	3	2.1	Newton's Laws of Motion Overview	1	History of the study of motion from Galileo to Aristotle to Isaac Newton
			2	Geometry Review (Pythagorean Theorem, Sine, Cosine, Tangent for Right Triangles, Law of Sine's and Law of Cosines for Non-Right Triangles			Equilibrium Forces (Newton's First Law)	1	Mass vs. Weight (parallel & perpendicular weight) (Inertial vs. Gravitational)
								2	Normal Force (including on an inclined planes)
								3	Friction (coefficient of friction, static vs. kinetic friction)
			3	Vector Addition (Parallel, Anti-parallel and Perpendicular Vectors)			Unbalanced Forces (Newton's 2nd)	1	Unbalanced forces on a single mass (single mass problems with a net force given, finding the net force given with a single mass)
			4	Relative Velocity (riverboats and airplanes)					
2	1.2	Motion in one dimension	1	Constant Speed Motion (Analytical distance & speed, Displacement & velocity)	3	2.2	Impulse and Momentum	1	Momentum as moving inertia (1st Law)
			2	Graphical (Reading position vs. Time graphs, velocity vs. time graphs, constructing graphs)				2	Newton's 2nd Law and impulse application in collisions
			3	Constant Acceleration along a straight line--algebraically (kinematic equations) & graphically				3	Conservation of Momentum (elastic vs. inelastic collisions) (Newton's 3rd Law)
			4	Motion of Falling Objects			Work, Energy, and Power	1	Conservation of Mechanical Energy (Gravitational Potential Energy and Kinetic Energy $PE_1 + KE_1=PE_2+KE_2$)
2	1.3	Projectiles (2D)	1	Parametric Motion & Graphing Calculator				2	Work defined (3 definitions of net work) (using applied, weight, normal force and friction)
			2	Algebraic Method of Projectile Motion (starts horizontal, symmetrical path, asymmetrical path)					Simple Machines, Efficiency and Mechanical Advantage/Power (average vs. instantaneous)
2	1.4	Centripetal Force, Circular motion, & Gravity	1	Circular motion, centripetal force vs. the fictitious "centrifugal force"	2	2.3	Fluid Mechanics	1	Bernoulli's Principle
			2	Period, frequency, angular velocity, and centripetal acceleration				2	Pascal's Principle
			3	Newton's Law of Universal Gravitation	1	2.4	Rotational Inertia and Torque /Rotational Equilibrium	1	Static Torque
								2	Conservation of Angular Momentum

Third Nine Weeks					Fourth Nine Weeks				
Number of weeks	Unit		Topics		Number of weeks	Unit		Topics	
2	3.1	Oscillators (Simple Harmonic Motion)	1	Kinematics for Mass on a Spring (Functions of Time and Functions of position)	2	4.1	Temperature, Heat, & Thermodynamics	1	Temperature, Kinetic Energy, and flow of heat energy (Thermal expansion and contraction)
			2	Restoring Forces (Hooke's Law, Plane Pendulum Period Formula)				2	First Law of Thermodynamics (conduction, convection, and radiation)
			3	Energy of the System (Total, Potential, and Kinetic)				3	Second Law of Thermodynamics
2	3.2	Electrostatics & Electric Potentials	1	Charge (Method of charging by friction, by contact, by induction)					
			2	Electric Force (Between two particles. Among multiple collinear particles, among coplanar particles)	2	4.2	Mechanical Waves/Sound Waves	1	Measurements of Waves (Frequency, wavelength, speed, amplitude) (Transverse and longitudinal)
			3	Electric Field (Particles interacting with the field, particles as sources of field, Shielding)				2	Wave Interactions (Reflections, refractions, diffraction, interference)
			4	Electric Potential (Definition of Volt, Field and Volt Relation, Particle Accelerator, Coulomb's Law, Corona Discharge)				3	Standing Waves (on a string and in a pipe)
								4	Sound (speed, Doppler Shift, Intensity)
					2	4.3	Electromagnetic Waves, Light, and Color	1	Production and types of EM waves
								2	Wave-particle duality of light
								3	Color (additive and subtractive)
3	3.3	Current & Circuits	1	Capacitors, flow of electrons in alternating and direct current, Conventional Current	2	4.4	Optics	1	Mirrors (types of mirrors, reflection and refraction)
			2	Calculations (Current and Voltage, Power and Heat)				2	Ray Tracing (Concave and Convex, Mirror Equations)
			3	Ohm's Law				3	Lenses (ray tracing, total internal reflection)
			4	Power and Series Circuits					
			5	Parallel Circuits	1	4.5	Nuclear Physics	1	Nuclear Physics
			6	Complex Circuits and Safety Devices					
2	3.4	Magnetism & Electromagnetic Induction	1	Sources of Magnetism (Bar magnets, electrical current sources, straight currents, solenoids)					
			2	Magnetic Forces (Charged particles with pure magnetic fields, charge particles with crossed electric and magnetic fields, parallel currents)					